

GOONOV, I. N.

USSR/ Physical Chemistry - Thermodynamics. Thermochemistry
Equilibrium. Physicochemical Analysis. Phase Transitions. 3-8

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7432

Author : Lukomskiy, Yu.Ya. and Godnev, I.N.
Inst : Ivanovsk Institute for Chemical Technology
Title : Formulas for the Heat Capacity of Nitric Oxides Over a
Broad Range of Temperatures

Orig Pub : Tr. Ivanovsk. khim.-tekhnol. in-ta, 1956, Vol 5, 43-45

Abstract : Formulas have been obtained for the calculation of the heat capacities of NO(I), N₂O (II), and NO₂ (III) over a wide range of temperatures, based on spectroscopic data. The formulas are expressed in the form $C_p = C_{p0} - (A/T + B\ln T + C/T^2)$, where ω is the vibrational frequency and ϵ_1 is the Einstein function for one degree of freedom. The last two terms express the correction for anharmonicity and other deviations from the model of the rigid rotator and the harmonic vibrator.

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USSR/ Physical Chemistry - Thermodynamics. Thermochemistry. B-8
Equilibrium. Physicochemical Analysis. Phase Transitions.

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7432

For I $C_{pq} = 7/2R$, $\nu_1 = 1892$ (1), $a = 0.68 \times 10^{-4}$, $b = 0$;
for II $C_{pq} = 7/2R$, $\nu_1 = 1289$ (1), $\nu_2 = 593$, (2),
 $\nu_3 = 2238$ (1), $a = 0.185 \times 10^{-3}$, $b = 0.975 \times 10^{-7}$; for III $C_{pq} = 4R$, $\nu_1 = 1319$ (1), $\nu_2 = 749$ (1), $\nu_3 = 1621$ (1),
 $a = 0.7 \times 10^{-4}$, $b = 0$ (the frequencies are expressed in
cm⁻¹ and the number in parentheses indicates the degree
of degeneracy). The constants a and b for I and II are
calculated by the least squares method from exact values
of the heat capacities; the constant a for III is calcula-
ted from the approximate values of the anharmonicity coef-
ficients, calculated from the values of the same coeffici-
ents of other molecules by analogy. For I the maximum de-
viation is 0.5 percent (300-5,000°K) and for II, 0.2 per-
cent (300-1500°K). The above-presented formulas are con-
siderably more accurate than the usual formulas of the
series type.

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USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-
Chemical Analysis. Phase Transitions. B- 8

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26082

Author : I.N. Godnev, A.S. Sverdin
Title : Equilibrium of Dichlorobenzene Isomers.

Orig Pub : Zh. fiz., khimii, 1956, 30, No 5, 1185.

Abstract : The equilibrium constants and the composition of the equilibrium mixtures at 298, 16, 600 and 800°K were computed for the reactions $n\text{-C}_6\text{H}_4\text{Cl}_2$ (gas) \rightleftharpoons $m\text{-C}_6\text{H}_4\text{Cl}_2$ (gas) and $n\text{-C}_6\text{H}_4\text{Cl}_2$ (gas) \rightleftharpoons $o\text{-C}_6\text{H}_4\text{Cl}_2$ (gas) on the basis of bibliographic data (Godnev, I. N., Sverdin, A.S., Zh. fiz. khimii, 1950, 24, 670; RZhKhim, 1955, 9177).

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Card 1/3

51-6-4/26

AUTHORS: Godnev, I. N., Sverdlin, A. S. and Ushanova, N. I.

TITLE: Calculation of the Normal Vibration Frequencies and
of Thermodynamic Functions of Germanium Tetraiodide.
(Vychisleniye chastot normal'nykh kolebaniy i
termodynamicheskikh funktsiy chetyrekhiodistogo
germaniya.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.II, Nr.6,
pp. 704-709. (USSR)

ABSTRACT: This paper reports approximate calculation of the
normal vibration frequencies for germanium tetraiodide
(GeI_4). These frequencies were calculated by extra-
polation of the coefficients of induction (vliyaniya)
of the molecules GeF_4 , $GeCl_4$ and $GeBr_4$. From the
dependence of the reduced induction coefficients for
the above three molecules on the equilibrium bond
lengths the coefficients of induction for GeI_4 were
calculated. The results are given in Table 2. The
mean values of the normal frequencies of GeI_4 were
found to be: 171, 60, 276 and 87 cm^{-1} . This method

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51-6-4/26

Calculation of the Normal Vibration Frequencies and of
Thermodynamic Functions of Germanium Tetraiodide.

was checked by applying it to the molecule of SiI_4 . This was done by extrapolation of the inductions coefficients for SiF_4 , SiCl_4 and SiBr_4 . The calculated results for SiI_4 are given in Table 4. Comparison of the calculated values for the normal frequencies of SiI_4 with those obtained experimentally (Refs. 15, 21) shows that the error does not exceed 20 cm^{-1} for the two higher frequencies of 168 and 405 cm^{-1} . For the SiI_4 frequencies of 63 and 94 cm^{-1} the error was only 10 cm^{-1} . The present authors conclude that the results of Jolly and Latimer (Ref. 1) are incorrect. The latter two authors used Hildebrand's method (Ref. 2) and obtained results which are considerably too low. Thermodynamic functions for GeI_4 are given in Table 6. They were calculated assuming harmonic vibrations and a rigid rotator model. There is 1 figure, 6 tables and 24 references, 9 of which are Slavic.

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51-6-4/26

Calculation of the Normal Vibration Frequencies and of
Thermodynamic Functions of Germanium Tetraiodide.

ASSOCIATION: Ivanovo Chemico-technological Institute.
(Ivanovskiy khimiko-tehnologicheskiy institut).

SUBMITTED: November 19, 1956.

AVAILABLE: Library of Congress.

Card 3/3

SCV/51-5-5-11/23

AUTHORS: Ushanova, N.I., Godnev, I.N. and Orlova, I.V.

TITLE: Normal Vibration Frequencies and Thermodynamic Functions of Titanium Tetraiodide (Chastoty normal'nykh kolebaniy i termodynamicheskiye funktsii chetyrekhodistogo titana)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 5, pp 567-570 (USSR)

ABSTRACT: The present paper reports an approximate calculation of normal vibration frequencies and thermodynamic functions of TiI_4 using the method described in Refs 1, 2. The equilibrium distance r_0 between Ti and I in TiI_4 is not known. It may be calculated approximately using the covalent radius method of Ref 3. Using the known distances Ti--Cl and Ti--Br in $TiCl_4$ and $TiBr_4$, and the covalent radii of Cl and Br a value of 1.17-1.22 Å was obtained for the radius of Ti. Assuming the covalent radius of I to be 1.33 Å the authors found r_0 between Ti and I to be 2.50-2.55 Å. The mean value of $r_0 = 2.52$ Å was used in the present paper. This method of calculation of r_0 was checked by finding the dimensions of Ge halides (Table 1). It was found that although the calculated values of the dimensions of GeF_4 and $GeCl_4$ departed

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Normal Vibration Frequencies and Thermodynamic Functions of Titanium Tetraiodide

considerably from the experimental values, the calculated value for GeI_4 (2.55 Å) was within 0.05-0.07 Å of the experimental value. This was taken as confirmation that $r_0 = 2.52 \text{ \AA}$ for the Ti--I distance is approximately correct. Using experimental values of frequencies the authors calculated reduced induction coefficients for TiCl_4 and TiBr_4 using equations given by Sverdlin (Ref 1). These induction coefficients are given in Table 2. Using the results of Table 2 the authors calculated reduced induction coefficients for TiI_4 for the following values of r_0 : 2.47, 2.52 and 2.57 Å (Table 3). Using the calculated induction coefficients of TiI_4 the authors deduced normal vibration frequencies (Table 4). Using the value $r_0 = 2.52 \text{ \AA}$ and the normal vibration frequencies of TiI_4 , as given in Table 4, the authors calculated thermodynamic functions on the assumption of harmonic vibrations and rigid rotations. These thermodynamic functions are given for gaseous TiI_4 at 1 atm pressure in Table 5. To estimate the largest possible error the authors calculated the thermodynamic functions at 298.2 and

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SOV/51-5-5-11/23

Normal vibration frequencies and Thermodynamic Functions of Titanium Tetraiodide

1000⁰A for the extreme values of the frequencies and for values of r_0 ranging from 2.47 to 2.57 Å (Table 5). The largest errors in thermodynamic functions were of the order of 1.5-2.0 cal/deg per mole. There are 6 tables, 1 figure and 15 references, 7 of which are Soviet, 2 English, 2 American, 1 German, 1 Japanese, 1 Belgian and 1 translation

SUMMITED: December 31, 1957

Card 3/3 1. Titanium iodide--Spectra 2. Titanium iodide--Thermodynamic properties

AUTHORS: Godnev, I. N. Gudova, R. G. 807/76-32-7-0 15

TITLE: A Contribution to the Theory of the Heat Capacity of a Poly-
atomic Non-Associated Liquid (K teorii teploymekosti mnogo-
atomnoy neassotsiirovannoy shidkosti)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr. 7, pp. 1586-1591
(USSR)

ABSTRACT: Continuing a previous paper in which the equation for C_V had
been obtained, which, however, at medium temperatures re-
presents the upper limit of C_V (see the diagrams according
to Staveley (Ref 16)) and thus, might supply too high re-
sults, a precision of this equation is carried out in the
present paper. Under the assumption of the energy being a
quadratic function it is assumed that the potential energy
of the rotational and translational motion $u = 3N + 3N \int$
contains quadratic terms, \int changing within the interval
0 to 1, and the kinetic energy $t = 6N$ containing quadratic
terms. $\int = 0$ corresponds to free rotation and $\int = 1$ to the
complete hindrance. Based on the generalized theorem on the
equal distribution of energy under the assumption that with
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SOV/76-52-7-0
A Contribution to the Theory of the Heat Capacity of a Polyatomic Non-
Associated Liquid

the temperature δ does not considerably change, the equation
is given the form $C_v = 4,5R + 1,5R\delta + C_{osc}$. The value C_{osc}
is calculated according to the known formula by Einstein
(Refs 28, 29). The magnitude δ may, according to the papers
by Pitzer (Ref 23), Hildebrand (Ref 24) and Halford (Ref 25),
as well as by Staveley (Ref 26) and Bondi (Ref 27), be cal-
culated by way of the evaporation entropy. A diagram for
 CCl_4 , $CHCl_3$ and C_6H_6 is given with the data supplied by
B. I. Stepanov (Ref 37), as well as Pitzer and Scott (Ref 38)
being used for the calculation of the value of δ . Also
calculations by the example of other hydrocarbons were carried
out and it was found that the data supplied by V. Ya. Kurbatov
(Ref 33) do by far not agree with the C values obtained by
Rossini (Ref 44) and Riedel (Ref 40). There are 1 figure, 4
tables, and 44 references, 15 of which are Soviet.

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A Contribution to the Theory of the Heat Capacity of a Polyatomic Non-
Associated Liquid

SOV 76-52-7-20.45

ASSOCIATION: Ivanovskiy khimiko-tehnologicheskiy institut
(Ivanovo Chemical and Technological Institute)

SUBMITTED: March 12, 1957

1. Liquids--Thermodynamic properties 2. Liquids--Theory
3. Mathematics

Card 3/3

24(7)

AUTHORS: Orlova, I.V. and Godnev, I.N.

SOV/51-6-4-6/29

TITLE: On the Connection Between the Larnaudie Method and the Yel'yashevich-Stepanov Method of Zero Approximations (O svyazi metoda Larnaudi i metoda nulevykh priblizheniy Yel'yashevicha i Stepanova)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 447-449 (USSR)

ABSTRACT: Larnaudie (Ref 1) has recently described an approximate method of calculation of frequencies and force constants of molecules: this he called the "progressive rigidity" method. Transformation of the Larnaudie equations into time equations of Yel'yashevich shows that the Larnaudie method is one of the variants of the zero approximation of Yel'yashevich and Stepanov (Refs 2, 3). Application of the Larnaudie method yields approximate equations for calculation of force constants: they are Eqs (18)-(20) in the text. These equations were used to find the force constants of CF_4 . The results are given in col. 2 of a table on p 229; they agree well with Stepanov's exact values shown in Col. 3 and taken from Refs 2, 10. There are 1 table and 10 references, 7 of which are Soviet, 2 English and 1 French.

SUBMITTED: March 31, 1958
Card 1/1

24(7)

SOV/51-8-5-4/34

AUTHORS: Godnev, I.N. and Orlova, L.V.

TITLE: The Relationship Between the Kinematic Coefficient Matrix with the Reciprocal Matrices of Kinetic Energy in the Problem of Molecular Vibrations (O svyazi matritsami kinematicheskikh koefitsientov s obratnymi matritsami kineticheskoy energii v zadache o molekulyakh v molekule)

PERIODICAL: Optika i Spektroskopiya, 1969, Vol 6, No 5, pp 583-596 (USSR)

ABSTRACT: The authors discuss the use of Lagrange's equations, from which holonomic constraints are not excluded, in solution of the problem of molecular vibrations in dependent coordinates. Formulae are deduced which relate the kinematic coefficient matrix A with the matrices T^{-1} and T_0^{-1} , where T and T_0 are the kinetic energy matrices for dependent and independent coordinates respectively. The paper is entirely theoretical. There are 1 appendix and 7 references, 6 of which are Soviet, 1 English and 1 German.

SUBMITTED: July 2, 1969

Card 1/1

SOV/51-7-2-27/34

AUTHORS: Godnev, I.N., Aleksandrovskaia, A.M. and Rigina, I.V.

TITLE: Frequencies of Normal Vibrations of Zirconium Halides (Chastoty normal'nykh kolebaniy galogenidov tsirkoniya)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 2, pp 271-273 (USSR)

ABSTRACT: Calculation of frequencies of normal vibrations of TlI_4 was reported earlier (Ref 1). The present paper describes solution of a similar problem for zirconium halides. The authors used curves of the reduced induction coefficients plotted as a function of the atomic weight of the central atom; these curves were constructed separately for fluorides, chlorides, bromides and iodides. The interatomic distances were determined, as in Ref 1, by plotting the dependence of these distances as a function of the atomic number Z of the peripheral atom; the curve for zirconium halides was drawn above the SnX_4 curve through a point $r = 2.33 \text{ \AA}$ which represents the Zr-Cl interatomic distance in $ZrCl_4$. The interatomic distances r found in this way are listed in Table 1. Table 2 gives the calculated induction coefficients for $ZrCl_4$, $ZrBr_4$ and ZrI_4 . The normal vibrational frequencies of the four halides $ZrCl_4$, $ZrBr_4$, ZrI_4 and ZrF_4 found using the coefficients of Table 2 and equations given

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Frequencies of Normal Vibrations of Zirconium Halides

SOV/51-7-2-27/34

earlier (Ref 1) are listed in Table 3. For ZrF_4 the method used requires extrapolation of the induction coefficients and, therefore, it gives only the limits between which lie the normal vibrational frequencies ν_1 , ν_2 and ν_4 of this compound. The errors in the calculated frequencies of $ZrCl_4$, $ZrBr_4$ and ZrI_4 are estimated to be $\Delta\nu_1 = \pm 20$, $\Delta\nu_2 = \pm 10$, $\Delta\nu_3 = \pm 30$ and $\Delta\nu_4 = \pm 10 \text{ cm}^{-1}$. The method described was checked by calculating the normal vibrational frequencies of $SiCl_4$, $SiBr_4$ and SiI_4 (see Table 4 for data on $SiCl_4$). The calculated and experimental values of the $SiCl_4$ frequencies were found to agree within $1-7 \text{ cm}^{-1}$, except for ν_3 where the difference was 25 cm^{-1} . In the case of zirconium halides the calculated frequency $\nu_1 = 382 \text{ cm}^{-1}$ for $ZnCl_4$ also agrees well with the experimental value of 383 cm^{-1} . There are 4 tables, 1 figure and 11 references, 4 of which are Soviet, 6 English and 1 French.

SUBMITTED: February 23, 1959

Card 2/2

ALIKSAITIS, O. SLYAKH, A. I.; KUZNETSOV, I. V.; TANILIT, L. S. . .

Normal vibration frequencies of lead halides. Opt. i sp. str. 7
no. 6:844-846 D 159. (M. I. T.)
(Lead halides—Spectra)

S/051/60/008/02/006/001
E201/E391

AUTHORS: Rigina, I.V. and Godnev, I.N.

TITLE: On the Theory of Application of Dependent Coordinates
in the Problem of Molecular Vibrations

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 2,
pp 171 - 175 (USSR)

ABSTRACT: Recently, Gold, Dowling and Meister (Ref 1) described
calculation of rotational-vibrational spectra of multi-
atomic molecules using a method of transforming independent
into dependent coordinates, which gives amplitude equations
with singular matrices. The present authors show that
the use of such equations is not essential and they derive
more general equations from Lagrange's equations with
constraints (cf. Ref 2). Such general equations are
useful in discussions of molecular vibrations in dependent
coordinates. The paper is entirely theoretical.
There are 2 mathematical appendices and 11 references,⁷
of which are Soviet, 3 English and 1 German.

DATE: May 11, 1959

Card 1/1

(C)

ALEKSANDROVSKAYA, A.M.; GODNEV, I.N.

Tentative orientation prediction of normal vibration frequencies
of hafnium halides. Opt. i spektr. 9 no.2:273-275 Ag '60.

(Hafnium halides)

(MIRA 13:8)

GODNEV, I.N.; ALEKSANDROVSKAYA, A.M.

Use of the curves $\Phi = f(z_x)$ for the study of the vibrational spectra of tetrahedral molecules and ions of the form $X(Hal)_4$.
Opt. i spektr. 10 no. 1-27-32 Ja '61. (MIRA 14:1)
(Halides--Spectra) (Ions--Spectra)

GODNEV, I.N.; SVERDLIN, A.S.

Equilibrium of dichlorobenzene isomers. Zhur. fiz. khim. 35
no.2:474-475 F '61. (MIRA 16:7)

1. Ivanoskiy khimiko-tehnologicheskiy institut.
(Benzene) (Phase rule and equilibrium)

ALEKSANDROVSKAYA, A.M.; ALESHONKOVA, Yu.A.; SINITSYNA, L.N.; GODNEV, I.N.

Thermodynamic functions of silicon tetraiodide and zirconium
tetraiodide in the gaseous state. Izv.vys.ucheb.zav.; khim.i
khim.tekh. 5 no.1:171-172 '62. (MIRA 15:4)

1. Ivanovskiy khimiko-tehnologicheskiy institut, kafedra fiziki.
(Silicon iodide) (Zirconium iodide)

S/076/62/036/012/001/014
B101/B180AUTHORS: Godnev, I. N., Aleksandrovskaya, A. M., and Sverdlin, A. S.
(Ivanovo)TITLE: Correspondence between the force constants of XY_4 and XY molecules, where X is a IVB subgroup element and Y a halogen

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 12, 1962, 2609 - 2615

TEXT: The coefficients k_q of XY_4 molecules are compared with the force constants k_q of XY molecules for halogen (Y) compounds of elements (X) of the IVB subgroup. Approximate equations are derived for calculating the dynamic coefficients of XY_4 molecules by M. Larnaudie's method (J. Phys. et radium, 15, 365, 1954): $k_1 = k_q + 3h = v_1^2/\epsilon_y$; $k_2 = k_\alpha - 21 - 0 = v_2^2/\epsilon_{XO}$; $k_{11} = k_q - h \approx v_3^2/A_{11} + A_{12}v_4^2/A_{11}|A|$; $k_{12} = \sqrt{2}(a - b) \approx -A_{12}v_4^2/A|A|$; $k_{22} = k_\alpha - 0 \approx A_{11}v_4^2/|A|$ (1), where k_1 and k_2 are the reduced dynamic coefficients of the one-dimensional blocks, k_{11} , k_{12} , and k_{22} are the

Correspondence between ...

S/076/62/036/012/001/014
B101/B180

reduced coefficients of the two-dimensional block A_{11} , A_{12} , and A_{22} are the kinematic coefficients of the two-dimensional block. For the other symbols see M. V. Vol'kenshteyn, M. A. Yel'yashevich, B. I. Stepanov, Kolebaniya molekul (Vibrations of molecules); v. I., Gostekhnoretizdat, M., 1949. System (1) produced values for the force constants of CCl_4 , CBr_4 , SiF_4 , $GeCl_4$, $GeBr_4$, and CF_4 which were consistent with published figures. The relation $k_q \approx k_e + 0.4$ was obtained for chlorides, bromides, and iodides by comparing the k_q coefficients of halogen compounds of C, Si, Ge, Sn, and Pb with the k_q coefficients of diatomic molecules obtained by Y. P. Varshni (J. Chem. Phys., 28, 1081, 1958). Comparison of r_e the interatomic distances for diatomic molecules with r_q for XY molecules yields $r_e > r_q$ for iodides and $r_e < r_q$ for fluorides up to GeF_4 . The course of r_e and r_q as a function of Z_y at constant X (Fig. 3) can be used for determining r_q of PbF_4 , $PbBr_4$, and SnF_4 . There are 1 figure and 3 tables. The most important English-language references are: Y. Morino, Y. Nakamura a. T. Card 2/3

Correspondence between ...

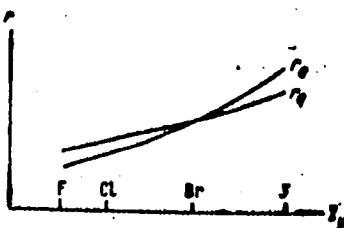
S/076/62/036/012/001/014
B101/B180

Jijima, J. Chem. Phys., 32, 643, 1960; C. W. F. T. Pistorius, J. Chem. Phys., 28, 514, 1958.

ASSOCIATION: Ivanovskiy khimiko-tehnologicheskiy institut (Ivanov Institute of Chemical Technology)

SUBMITTED: March 4, 1961

Fig. 3. r_e and r_q as functions of Z_y .



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RIGINA, I.V.; GODNEV, I.N.

Law of the exclusion of redundant coordinates in the problem of molecular vibration involving generalized forces. Izv. vys. ucheb. zav.; fiz. no.4:171-175 '63. (MIRA 16:9)

l. Sibirskiy tekhnologicheskiy institut i Ivanovskiy khimiko-tehnologicheskiy institut.
(Molecules—Vibration) (Matrices)

L 11059-63

EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD

ACCESSION NR: AP3000480

8/0153/63/003/001/0165/0166

35

AUTHOR: Aleksandrovskaya, A. M.; Godnev, I. N.; Sverdlin, A. S.

TITLE: Thermodynamic functions of hafnium halides

SOURCE: Izv. VUZ: Khimiya i khim. tekhnologiya, v. 6, no. 1, 1963, 165-166

TOPIC TAGS: thermodynamic functions, enthalpy function, free energy function, entropy, specific heat, Hf chloride, Hf bromide, Hf iodide

ABSTRACT: As a supplement to their previous tabulation of the thermodynamic functions of iodides of fourth group elements, authors present a tabulation of the thermodynamic functions of hafnium iodide, hafnium chloride, and hafnium bromide. These were calculated from vibrational frequencies found by the method of A. N. Aleksandrovskaya and I. N. Godnev (Optika i spektroskopiya, 9, 273, 1960), using the interatomic separations found in the same article. Experimental (calorimetric) and calculated entropy values for Hf chloride at 485 and 496K agree to within 0.5%. Orig. art. has: 3 tables.

ASSOCIATION: Kafedra fiziki, Ivanovskiy khimiko-tehnologicheskiy institut (Department of Physics, Ivanovskiy Chemical Technological Institute)

Card 1/1

ALEKSANDROVSKAYA, A.M.; GODNEV, I.N.

Normal vibration frequencies of $ZnCl_4^{2-}$, $CdCl_4^{2-}$, $HgBr_6^{2-}$, Hg_4^{2-} ions. Zhur. fiz. khim. 37 no.5:1113-1115 My '63. (MIRA 17:1)
1. Ivanovskiy khimiko-tekhnologicheskiy institut.

SAVCOGINA, M.S.; GODNEV, I.N.

Heat capacity of C_a liquid nitrophenols. Zhur.fiz.khim. 37 no.7:1633-1634
J1 '63. (MIRA 17:2)

1. Ivanovskiy khimiko-tehnologicheskiy institut.

GODNEV, I.N.; BIRGER, B.N.

Increase in entropy dis in the irreversible course of chemical reactions. Zhur. fiz. khim. 37 no.11:2553-2554 N°63.
1. Ivanovskiy khimiko-tehnologicheskiy institut. (MIRA 17:2)

L 39412-65 EWT(1) IJP(c)

ACCESSION NR: AP5006054

8/0139/65/001/001/1057/0061

AUTHOR: Vinogradova, V. N.; Godnev, I. N.

TITLE: On the applicability of the method of "progressing rigidity" to molecules ¹⁰
X(Hal)₄ in light of the theory of characteristic frequencies ⁸
^B

SOURCE: IVUZ. Fizika, no. 1, 1965, 57-61

TOPIC TAGS: tetrahedral molecule, halide, characteristic frequency, group IV element

ABSTRACT: The method of "progressing rigidity" was first proposed by M. Larnaudie (J. phys. et radium, v. 15, 365, 1964). The present article is devoted to an analysis of the existence of characteristic oscillations that explain the good applicability of the method of "progressing rigidity" to molecules of the type (Hal)₄, where X is an element of group IV. The analysis is carried out in light of the theory of characteristic frequencies advanced by L. S. Mayants (Teoriya i raschet kolebaniy molekul [Theory and Calculation of Vibrations of Molecules], M., 1961). Application of this theory to the molecules CS₄, CBr₄, CCl₄, and GeCl₄, using the

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L 39412-65

ACCESSION NR: AP5006054

force constants published in the literature, shows that the method of the "progressive rigidity" can be applied with good approximation to the molecules X(Hal). It is shown that the good applicability of the method is connected with the existence of three approximate characteristicities (a term introduced by L. S. Meynina in his work), which involve the singularities of the wave form and frequency of various oscillations of the molecules. Orig. art. has: 22 formulas and 1 table.

ASSOCIATION: Ivanovskiy khimiko-tehnologicheskiy institut (Ivanovo Chemical-Technological Institute)

SUBMITTED: 15Jul53

ENCL: 00

SUB COM: CP, CC

NR REF Sov: 010

OTHER: 009

me
Card 2/2

I 13004-66 EWT(d)/EWT(1) IJP(c)
ACC NR: AP6001637 SOURCE CODE: UR/0051/65/019/006/0074/0880

AUTHOR: Godnev, I. N.; Zaytsev, A. A.; Rigina, I. V.

ORG: none

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B

TITLE: Using Lagrange's equations with non-excluded bonds for constructing a theory of molecular vibrations in dependent coordinates

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 874-880

TOPIC TAGS: Lagrange equation, molecular physics, vibration

ABSTRACT: The authors propose a method for using Lagrange's equations with non-excluded bonds for taking account of any number of linear relationships between coordinates in the problem of vibrations in a molecule. This method eliminates the ambiguities which arise from unconditional application of ordinary Lagrange equations in the case of dependent coordinates. Expressions which describe the molecular oscillations are derived and the physical meanings and properties of the parameters which appear in these equations are analyzed. A comparison is made between differential equations for the vibration containing no more than two matrices in dependent

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16.114 5
UDC: 535.338.42.001.1

L 13004-66
ACC NR: AP6001637

and independent coordinates. The results show that a step by step application of Lagrange equations with non-excluded bonds is useful for constructing a logically systematic theory of vibrations in dependent coordinates. Orig. art. has: 1 table, 53 formulas.

SUB CODE: 20/ SUBM DATE: 16Nov64/ ORIG REF: 009/ OTH REF: 002

jra

Card 2/2

L 36180-66 EWT(m)/EWP(t)/ETI IJP(c) ES/JD/WW/JW/JG

ACC NR: AP6014261

SOURCE CODE: UR/0153/66/C09/C01/CC40/CC43

AUTHOR: Godnev, I. N.; Sverdlin, A. S.

CAG: Physics Department, Ivanovo Chemical Engineering Institute (Ivanovo fizika, Ivanovskiy khimiko-tehnologicheskiy institut)

TITLE: Heats of formation of gaseous uranium fluoridos

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 9, no. 1, 1966, 40-43

TOPIC TAGS: heat of formation, uranium compound, fluoride, heat of sublimation

ABSTRACT: The heats of formation of gaseous UF_5 , UF_4 , UF_3 , UF_2 , and UF were calculated. In the case of UF_4 , the calculation involved the use of the heat of formation of the crystalline substance and of its heat of sublimation, and the value obtained was $\Delta H_{298}^0 = -366$ kcal/mole. In the case of the remaining four fluorides, two methods were employed. In the first method, a curve of the heats of formation of gaseous fluorides UF_n from F (gas) and U (gas) were plotted as functions of n , and the results were recalculated for the standard state. The second method involved plotting the curve of the heats of detachment of a fluorine atom from UF_n (i. e., the curve of the heats of reaction at 298°K), according to the reaction

UF_n (gas) \rightarrow UF_{n-1} (gas) + F (gas) + ΔH_n ,
as functions of n . The average heats of formation ΔH_{298}^0 obtained by these two meth-

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UDC: 541.11+536.66

L 36180-66

ACC NR: AP6014261

ods are -440, -257, -141, and -20 kcal/molo for gaseous UF_5 , UF_3 , UF_2 , and UF respectively. Orig. art. has: 3 figures and 4 tables.

SUB CODE: 07/ SUBM DATE: 12Jun64/ ORIG REF: 004/ OTH REF: 005

Card 2/2MLP

GODNEV, T.N.; AKULOVICH, N.K.; ROTFARB, R.M. (Minsk)

Complete synthesis of chlorophyll and its biosynthesis. Usp.
sov. biol. 55 no.2:204-218 '63. (MIRA 17:8)

GODNEV, T.N., akademik; ROTFARB, R.M.

Relationship of the biosynthesis of phytol and carotinooids.
Dokl. AN SSSR 153 no.3:718-720 N '63. (MIRA 17:1)

1. Institut biologii AN BSSR. 2. AN BSSR (for Godnev).

*

L 25782-65 EWG(j)/EWG(r)/EWG(l)/FS(v)-3/EWG(v)/EWG(a)/EWG(c) Pa-5 DI

ACCESSION NR: AR5000950 S/0299/64/000/020/G002/G002

SOURCE: Ref. zh. Biologiya. Sv. t., Abs. 20G7

AUTHOR: Godnev, T. N.; Shabel'skaya, E. F.

TITLE: On the problem of chlorophyll and carotenoid daily fluctuations in leaves of certain plants

CITED SOURCE: Fiziol. rasteniy, v. 11, no. 3, 1964, 385-390

TOPIC TAGS: plant, chlorophyll, diurnal variation, spectrophotometer, plant pigment

TRANSLATION: The biological and physiological literature contain highly contradictory data on the presence of significant daily fluctuations in chlorophyll content of various plants. Chlorophyll level changes were investigated per square area unit at 0006, 0012, and 0018 hrs in the tomato, potato, Nymphaea lutea pond lily, Syringa emodi lilac, and abutilon (Abutilon striatum). Within the accuracy limits obtainable by a spectrophotometric method with a SF-4 spectrophotometer, no chlorophyll level fluctuations were found

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L 25782-65

ACCESSION NR: AR5000950

in the investigated plants, though in the abutilon the chlorophyll level increased slightly during afternoon hours. The authors indicate that further research on a large number of plants of different ecological groups is necessary to provide a conclusive answer to the problem. Institute of Experimental Botany and Microbiology AN BSSR, Minsk.

SUB CODE: LS ENCL: 00

Card 2/2

BC

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Determination of chlorophyll with the aid of the light of a Lange colored spectrometer. T. N. (KUDNEY and N. V. KALNISHCHEVICH. (Chemp. revs. Drift. AN SSSR) 1938, 2, 77-78). Chlorophyll in solutions containing 0.25 mg. per litre can be determined by Lange's colorimeter: > 30 c.c. of solution are needed. Using a Schott red filter CO_2 extracts can be used directly. P. G. C.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000615520008-4"

151 AND 150 CODES

Ca

The reaction of magnesypyrrrole with complex esters of some dibasic acids. T. N. Godfrey. *Uchenye Zapiski Belorusskogo Gosudarst. Univ., Ser. Khim.* 1966, No. 1, 3-13; *Khim. Referat. Zhur.* 1966, No. 7, 20. — The reactions between magnesypyrrrole with complex esters of substituted, unsatd., and aromatic acids were investigated. From the action of the dl-*t*-Bu esters of succinic, male, and fumaric acids there were obtained products of unknown compns. The brown color of these products changed by the action of acids to olive-green. The color was restored to the original brown by the action of alkalies. Action of the dl-Me and dl-*t*-Bu esters of tartaric acid produced a dark tarry substance which formed a blue-violet product sol. in ether (owing to the decompr. with water contg. NH_4Cl). The compn. of this product is $\text{C}_{11}\text{H}_{16}\text{O}_4\text{N}_2$. From its similarity with the substances described previously G. supposes it to be 1,4-dipyrrolyl-1,4-dipyrrolyl-2,3-butanediol. Pyrrolylphthalide was obtained from the action with $\sigma\text{-C}_6\text{H}_4(\text{CO}_2\text{Et})_2$. In this case the reaction takes place only with one CO_2Et group and the ketone obtained is, probably, isomerized into the enolic form. This is followed by the splitting off of 1 mol. of alc. (formed from the EtO group of the CO_2Et and the H atom of the enolic HO). This corresponds to the supposed mechanism of the incomplete reaction between magnesypyrrrole and the complex esters with the formation of ketones.

W. R. Henn

A88-11A METALLURGICAL LITERATURE CLASSIFICATION

CA

II D

The structure of chlorophyll and the theory of its formation in plants. T. N. Gedney. *Uchenye Zapiski Biologicheskogo Gosudarstv. Univ. Sverdlovsk. 1939*, No. 1, 15-38. *Khim. Referat. Zhur.* 1940, No. 7, 20; cf. C. A. 35, 1139. The structure of chlorophyll is reviewed. Some corrections must be made in the Willstatter structural formulas. A mechanism of the synthesis of porphyrins is presented. The transformation reaction of pyrroporphyrin (similar to chlorophyll) into mesoporphyrin (similar to heme) is given and the similarity between the pigments of plants and blood have been definitely established. The investigations of Rötschke and Rötschke and Rötschke confirm the views of G. of the formation of the main part of the chlorophyll molecule in the plants in the form of a leuco compound and a subsequent formation of the pigment by oxidation. Pyrrol extracts of protochlorophyll were treated with Zn and AcOH according to the method of Kuhn. No initial products were obtained from reoxidation. This is considered to be one of the cases which are observed occasionally in the chem. behavior of porphyrins. In pumpkin seeds chlorophyll and protochlorophyll are accompanied by carotenoids. W. R. Head

Chlorophyll concentration in chloroplasts of Malus medium. T. N. Godnev and S. V. Kalinhevich. *Compt. rend. acad. sci. U. R. S. S.* 27, N12-3 (1940) (in English).--

In order to det. the approximate amt. of chlorophyll in a unit of vol. and a unit surface in the leaves of *Malus*, 22 leaves of the plant were drawn on paper with 32-fold magnification, and their area was estd. according to Mettler by weighing the paper patterns. Four of these leaves were photographed and studied for their number of cells, number of plastids in a cell and the size of the plastids. To det. chlorophyll the 22 leaves were ground into a thin mass with quartz sand and chalk, extd. with 30 cc. of acetone, the soln. made up to 30 cc. and the extinction measured 4 times by means of Lange's colorimeter. The av. no. of chloroplasts in a leaf is 775,178. The total amt. of chlorophyll is 42 γ or 1.900 γ per leaf. The av. amt. of chlorophyll in a chloroplast is 2.4×10^{-4} γ. 9 references. A. H. Krueger

ASA-ISA METALLURGICAL LITERATURE CLASSIFICATION

100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-2400	2400-2500	2500-2600	2600-2700	2700-2800	2800-2900	2900-3000	3000-3100	3100-3200	3200-3300	3300-3400	3400-3500	3500-3600	3600-3700	3700-3800	3800-3900	3900-4000	4000-4100	4100-4200	4200-4300	4300-4400	4400-4500	4500-4600	4600-4700	4700-4800	4800-4900	4900-5000	5000-5100	5100-5200	5200-5300	5300-5400	5400-5500	5500-5600	5600-5700	5700-5800	5800-5900	5900-6000	6000-6100	6100-6200	6200-6300	6300-6400	6400-6500	6500-6600	6600-6700	6700-6800	6800-6900	6900-7000	7000-7100	7100-7200	7200-7300	7300-7400	7400-7500	7500-7600	7600-7700	7700-7800	7800-7900	7900-8000	8000-8100	8100-8200	8200-8300	8300-8400	8400-8500	8500-8600	8600-8700	8700-8800	8800-8900	8900-9000	9000-9100	9100-9200	9200-9300	9300-9400	9400-9500	9500-9600	9600-9700	9700-9800	9800-9900	9900-10000	10000-10100	10100-10200	10200-10300	10300-10400	10400-10500	10500-10600	10600-10700	10700-10800	10800-10900	10900-11000	11000-11100	11100-11200	11200-11300	11300-11400	11400-11500	11500-11600	11600-11700	11700-11800	11800-11900	11900-12000	12000-12100	12100-12200	12200-12300	12300-12400	12400-12500	12500-12600	12600-12700	12700-12800	12800-12900	12900-13000	13000-13100	13100-13200	13200-13300	13300-13400	13400-13500	13500-13600	13600-13700	13700-13800	13800-13900	13900-14000	14000-14100	14100-14200	14200-14300	14300-14400	14400-14500	14500-14600	14600-14700	14700-14800	14800-14900	14900-15000	15000-15100	15100-15200	15200-15300	15300-15400	15400-15500	15500-15600	15600-15700	15700-15800	15800-15900	15900-16000	16000-16100	16100-16200	16200-16300	16300-16400	16400-16500	16500-16600	16600-16700	16700-16800	16800-16900	16900-17000	17000-17100	17100-17200	17200-17300	17300-17400	17400-17500	17500-17600	17600-17700	17700-17800	17800-17900	17900-18000	18000-18100	18100-18200	18200-18300	18300-18400	18400-18500	18500-18600	18600-18700	18700-18800	18800-18900	18900-19000	19000-19100	19100-19200	19200-19300	19300-19400	19400-19500	19500-19600	19600-19700	19700-19800	19800-19900	19900-20000	20000-20100	20100-20200	20200-20300	20300-20400	20400-20500	20500-20600	20600-20700	20700-20800	20800-20900	20900-21000	21000-21100	21100-21200	21200-21300	21300-21400	21400-21500	21500-21600	21600-21700	21700-21800	21800-21900	21900-22000	22000-22100	22100-22200	22200-22300	22300-22400	22400-22500	22500-22600	22600-22700	22700-22800	22800-22900	22900-23000	23000-23100	23100-23200	23200-23300	23300-23400	23400-23500	23500-23600	23600-23700	23700-23800	23800-23900	23900-24000	24000-24100	24100-24200	24200-24300	24300-24400	24400-24500	24500-24600	24600-24700	24700-24800	24800-24900	24900-25000	25000-25100	25100-25200	25200-25300	25300-25400	25400-25500	25500-25600	25600-25700	25700-25800	25800-25900	25900-26000	26000-26100	26100-26200	26200-26300	26300-26400	26400-26500	26500-26600	26600-26700	26700-26800	26800-26900	26900-27000	27000-27100	27100-27200	27200-27300	27300-27400	27400-27500	27500-27600	27600-27700	27700-27800	27800-27900	27900-28000	28000-28100	28100-28200	28200-28300	28300-28400	28400-28500	28500-28600	28600-28700	28700-28800	28800-28900	28900-29000	29000-29100	29100-29200	29200-29300	29300-29400	29400-29500	29500-29600	29600-29700	29700-29800	29800-29900	29900-30000	30000-30100	30100-30200	30200-30300	30300-30400	30400-30500	30500-30600	30600-30700	30700-30800	30800-30900	30900-31000	31000-31100	31100-31200	31200-31300	31300-31400	31400-31500	31500-31600	31600-31700	31700-31800	31800-31900	31900-32000	32000-32100	32100-32200	32200-32300	32300-32400	32400-32500	32500-32600	32600-32700	32700-32800	32800-32900	32900-33000	33000-33100	33100-33200	33200-33300	33300-33400	33400-33500	33500-33600	33600-33700	33700-33800	33800-33900	33900-34000	34000-34100	34100-34200	34200-34300	34300-34400	34400-34500	34500-34600	34600-34700	34700-34800	34800-34900	34900-35000	35000-35100	35100-35200	35200-35300	35300-35400	35400-35500	35500-35600	35600-35700	35700-35800	35800-35900	35900-36000	36000-36100	36100-36200	36200-36300	36300-36400	36400-36500	36500-36600	36600-36700	36700-36800	36800-36900	36900-37000	37000-37100	37100-37200	37200-37300	37300-37400	37400-37500	37500-37600	37600-37700	37700-37800	37800-37900	37900-38000	38000-38100	38100-38200	38200-38300	38300-38400	38400-38500	38500-38600	38600-38700	38700-38800	38800-38900	38900-39000	39000-39100	39100-39200	39200-39300	39300-39400	39400-39500	39500-39600	39600-39700	39700-39800	39800-39900	39900-40000	40000-40100	40100-40200	40200-40300	40300-40400	40400-40500	40500-40600	40600-40700	40700-40800	40800-40900	40900-41000	41000-41100	41100-41200	41200-41300	41300-41400	41400-41500	41500-41600	41600-41700	41700-41800	41800-41900	41900-42000	42000-42100	42100-42200	42200-42300	42300-42400	42400-42500	42500-42600	42600-42700	42700-42800	42800-42900	42900-43000	43000-43100	43100-43200	43200-43300	43300-43400	43400-43500	43500-43600	43600-43700	43700-43800	43800-43900	43900-44000	44000-44100	44100-44200	44200-44300	44300-44400	44400-44500	44500-44600	44600-44700	44700-44800	44800-44900	44900-45000	45000-45100	45100-45200	45200-45300	45300-45400	45400-45500	45500-45600	45600-45700	45700-45800	45800-45900	45900-46000	46000-46100	46100-46200	46200-46300	46300-46400	46400-46500	46500-46600	46600-46700	46700-46800	46800-46900	46900-47000	47000-47100	47100-47200	47200-47300	47300-47400	47400-47500	47500-47600	47600-47700	47700-47800	47800-47900	47900-48000	48000-48100	48100-48200	48200-48300	48300-48400	48400-48500	48500-48600	48600-48700	48700-48800	48800-48900	48900-49000	49000-49100	49100-49200	49200-49300	49300-49400	49400-49500	49500-49600	49600-49700	49700-49800	49800-49900	49900-50000	50000-50100	50100-50200	50200-50300	50300-50400	50400-50500	50500-50600	50600-50700	50700-50800	50800-50900	50900-51000	51000-51100	51100-51200	51200-51300	51300-51400	51400-51500	51500-51600	51600-51700	51700-51800	51800-51900	51900-52000	52000-52100	52100-52200	52200-52300	52300-52400	52400-52500	52500-52600	52600-52700	52700-52800	52800-52900	52900-53000	53000-53100	53100-53200	53200-53300	53300-53400	53400-53500	53500-53600	53600-53700	53700-53800	53800-53900	53900-54000	54000-54100	54100-54200	54200-54300	54300-54400	54400-54500	54500-54600	54600-54700	54700-54800	54800-54900	54900-55000	55000-55100	55100-55200	55200-55300	55300-55400	55400-55500	55500-55600	55600-55700	55700-55800	55800-55900	55900-56000	56000-56100	56100-56200	56200-56300	56300-56400	56400-56500	56500-56600	56600-56700	56700-56800	56800-56900	56900-57000	57000-57100	57100-57200	57200-57300	57300-57400	57400-57500	57500-57600	57600-57700	57700-57800	57800-57900	57900-58000	58000-58100	58100-58200	58200-58300	58300-58400	58400-58500	58500-58600	58600-58700	58700-58800	58800-58900	58900-59000	59000-59100	59100-59200	59200-59300	59300-59400	59400-59500	59500-59600	59600-59700	59700-59800	59800-59900	59900-60000	60000-60100	60100-60200	60200-60300	60300-60400	60400-60500	60500-60600	60600-60700	60700-60800	60800-60900	60900-61000	61000-61100	61100-61200	61200-61300	61300-61400	61400-61500	61500-61600	61600-61700	61700-61800	61800-61900	61900-62000	62000-62100	62100-62200	62200-62300	62300-62400	62400-62500	62500-62600	62600-62700	62700-62800	62800-62900	62900-63000	63000-63100	63100-63200	63200-63300	63300-63400	63400-63500	63500-63600	63600-63700	63700-63800	63800-63900	63900-64000	64000-64100	64100-64200	64200-64300	64300-64400	64400-64500	64500-64600	64600-64700	64700-64800	64800-64900	64900-65000	65000-65100	65100-65200	65200-65300	65300-65400	65400-65500	65500-65600	65600-65700	65700-65800	65800-65900	65900-66000	66000-66100	66100-66200	66200-66300	66300-66400	66400-66500	66500-66600	66600-66700	66700-66800	66800-66900	66900-67000	67000-67100	67100-67200	67200-67300	67300-67400	67400-67500	67500-67600	67600-67700	67700-67800	67800-67900	67900-68000	68000-68100	68100-68200	68200-68300	68300-68400	68400-68500	68500-68600	68600-68700	68700-68800	68800-68900	68900-69000	69000-69100	69100-69200	6

CA

110

Leucophyll and protoclorophyll. F. N. Ganley and S. V. Kallachevich. *Trudy Inst. Fiziol. Rastenii no. K. A. Timiryazeva* 4, No. 2, 100-6 (1945).—A review with many references on the natural formation of chlorophyll is presented. A theory of formation is formulated thus: the 1st step is formation of pyrrole compounds, having a H in the α -position, which then condense with CH_2O to yield leucophyll, which by oxidation gives tetrahydroporphyrinogen, which by a loss of H_2O may give tetrapyrromesoporphyrin which is reduced, in several steps, to protoclorophyll or chlorophyll. Although it was not possible to isolate leucophyll from the exptl. plant sprouts, the reduction of protoclorophyll to the leuco deriv. was demonstrated; the latter oxidizes to a substance whose spectrum is comparable to that of protoclorophyll. The lower skins of the pumpkin seeds were rapidly extd. with pyridine and the ext. aliquot was dild. with EtOH. This was treated with aq. AcOH and Zn dust in N atm. for 2 hrs. at room temp. The pale yellow soln. could be kept without change under petro- latum for 2 months. Bubbling with O_2 reoxidizes the material in 1 hr. at 40° , in 2 hrs. at 50° , while standing in the air at 15° required 32 hrs. for reoxidation. The oxidized soln. on passage through sucrose moistened with benzene gave 3 absorption zones: a narrow dark one (where concn. of a component with abs. bands at 6262-6175, 6019-6000, 5907-6649, 6580-5470, and 5349-5160 \AA . took place), a middle green zone (where concn. of component with abs. bands at 6325-6197, 6037-5639, 5810-5802, 5590-5511 and 5411-5253 \AA . took place) and a yellow carotenoid zone.

G. M. K.

ASS-31A METALLURGICAL LITERATURE CLASSIFICATION

GODNIV, T. N.

The structure of chlorophyll and possible ways of its development in a plant; report.
Moskva, Izd-vo Akad. nauk SSSR, 1947. 48, 2 p. (Timiriazevskie chtenija, ?)

GODNEV, T. N.

USSR/Medicine - Chlorophyll
Medicine - Amino Acids - Determination

Jul 47

"The Nature of the Bond Between Chlorophyll and Protein in Chloroplasts," T. N. Godnev,
Lab Plant Physiol, Acad Sci USSR; O. P. Osipova, Inst Plant Physiol imeni K. A.
Timiryazev, Acad Sci USSR, 4 pp

"Dokl Akad Nauk SSSR, Nova Ser" Vol LVII, No 2

Lists experiments of various scientists to determine nature and character of subject
bond. Describes experiments showing effect of amino acids, palmitinic acids, and ethyl
bromides on chlorophyll. Submitted 22 Jan 1947.

PA 60T44

CA

11-2

Effect of cations and anions on the rate of extraction of chlorophyll from living leaf tissues. T. N. Godfrey, V. M. Terent'ev, and K. P. Parmon. *Transl. Amer. Nauk. Rad. S.S.R.* 1948, No. 3, 73. D. - Extrn. of chlorophyll from petioles or carrot leaves is accelerated by the presence of ions of Na, Ba, Ca and Mg in the 40% EtOH used for extrn. The acceleration increases with increased concn. of the ions (used as nitrates except for CaCl_2) and max. effect occurs at 2N concn. The order of activity increases Na, Ca, K, Ba, Sr, Mg. Possibly the ions favor the cleavage of chlorophyll from its linking with protein and lipides.

G. M. Kusolapoff

15-A

Growth-control substances and the possibilities of their use in the control of weeds. P. N. Godfrey and V. M. Terent'ev. *Ikzdat. Akad. Nauk SSSR* 1964, No. 4, 99-101. A brief review. Weeds of agrotechnicous types are controlled readily by 4.0 kg per ha. of 2,4-D, although its effects are shown even by 2.1 kg doses. At these levels the material causes a delay of up to 9 days in germinating of wheat. G. M. Kondratenko

GODNEV, T. N.

Godnev, T. N. "K. A. Timiryazev and modern theories of the formation of chlorophyll in plants", Uchen. zapiski (Belorus. gos. un-t), Issue 7, 1948, p. 3-18,-
Bibliog: 10 items.

SO: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 11, 1949).

GODNEV, T. N.

GODNEV, T. N. "The role of Russian scholars in the development of studies of chlorophyll", In the collection". Materialy noyabr'skoy sessii Akad. nauk BSSR, 1947, Minsk, 1949, p. 140-49.

SO: U-4393, 19 August 53 (Letopis 'Zhurnal 'nykh Statey', No. 22, 1949).

RE: U.S.S.R.

Chernov, V. V., V. V. Lopatin, N. I. Tsvetkov, "Effect of the diffusion of chloroacrylic on the products of the natural reduction with dissociating acids of high molecular weight", *Investigative Akad. Nauk SSSR*, No. 1, p. 32-1, available cite 8.

So: 2-2261, 10 April 59, (Latvian "Zurnal Inzh. Stroy", No. 12, 1959).

GODNEV, T. N.

22390. Godnev, T. N. OBRAZOVANIYE KHLOROFILLA I KHLOROTICHESKIKH LIST'YAKH PRI INFIL'TRATSII SOLEY ZHELEZA. IZVESTIYA AKAD. NAUK SSSR, 1949, No. 3, S. 153-56

SO: LETOPIS' No. 30, 1949

44
C4
PROCESSED AND PROTECTED SOURCE

11d
PACIFIC 3500

Structure of chloroplasts and concentration of chlorophyll in some aquatic plants. F. N. Godfrey, S. V. Kostylevich, and G. E. Zakharkin. *Bot. Zhurn.* 25, No. 5, 557 (1949). Average chlorophyll content in chloroplasts during growth period is 2×10^{-6} in *Syringa vulgaris*, 2.4×10^{-6} in *Malus domestica*, 1.8×10^{-6} in *Elodea canadensis*; the amt. varies from 1.0×10^{-6} to 4.3×10^{-6} approx. with the size of the chloroplasts. In *Potamogeton latens* the chlorophyll content per chloroplast is similar in surface specimens and somewhat lower in specimens taken from 3 m. depth, with a similar result being found in *P. perfoliatus*. The semiaxes of the chloroplasts from the *P. perfoliatus* (in μ) are 3.05, 3.04, and 1.60; from *P. latens*: 3.16, 2.4, and 1.34 (surface specimens, with somewhat larger values for the deeper water specimens).
G. M. Kosolapoff

45
A-514 - METALLURGICAL LITERATURE CLASSIFICATION

GODNEV-T. N.

✓ Comparative energy of extraction of chlorophyll of various plants by inactive solvents. T. N. Godnev, M. V. Terent'eva, and K. P. Parmon. *Abd. Nauch. Belorus. S.S.R., Inst. Biol., Sbornik Nauch. Trudov* 1950, No. 1, 3-7.—Petr. ether exts. only 5-10% of chlorophyll from crushed leaves of plants like sunflower, corn, spinach or quackgrass, whereas leaves of plants like grapes, oak, cherry, or horsetail yield 20-88% of their chlorophyll under the same conditions. The greatest content of chlorophyll is extractable from plants at the very end of the vegetation period, at which time the values of extractability are some 80% over the min. The results indicate the presence of chlorophyll in the plastids not only bound with proteins but also in a lipidic form, and possibly colloidal form, as indicated by spectrometric detns. of Krasnovskii and Brin (C.A. 46, 6940). Alteration of extractability of chlorophyll with petr. ether with the season is explained by alteration in equil. between the chlorophyll-protein-lipide complex on one hand and free chlorophyll, protein, and lipide matter, on the other hand. The binding in such complexes is believed to take place between the N-atoms of the pyrrole rings and the carboxyl groups of the protein. G. M. Kosolapoff

GODNEV, T.N., professor; TERENT'YEV, V.M., kandidat biologicheskikh nauk.

Study of the effect of potassium and phosphate nutrition on the formation of structural tissues and on stalk firmness of cereals in connection with lodging. *Sbor. nauch. trud. Inst. biol. AN BSSR* no.1: 25-34 '50.

(MIR 9:1)

1. Deystvitel'nyy chlen AN BSSR (for Godnev)
(Grain) (Plants--Nutrition)

GODNEV, T.N.; MIROHENKO, A.V., kandidat biologicheskikh nauk.

Lupine as a forage plant. Sbor.nauch.trud.Inst.biol.AN BSSR
no.1:67-75 '50. (MLRA 9:1)

1.Deystvitel'nyy chlen AN BSSR (for Godnev)
(Lupine)

GODNEV, T.N., professor; TEHENT'YEV, V.M., kandidat biologicheskikh nauk.

Study of the effect of potassium and phosphate nutrition on the formation of structural tissues and on stalk firmness of cereals in connection with lodging. Sbor.nauch.trud.Inst.biol.AN BSSR no.1:97-99 '50. (MLBA 9:1)

1. Deystvitel'nyy chlen AN BSSR (for Godnev).
(Carrots) (Carotene)

RODN V. P. M.

"Concerning the Chlorophyll in a Bacteriod Organism of Sewage", Iz Ak Nauk Belorus SSR, No. 6, p 167, 1950.

11-10

CA

Quantitative determination of chlorophyll and some carotenoids. T. N. Godnev and V. M. Terent'ev (Akad. Nauk. Belorussk. SSR, Minsk). Trudy Inst. Fizich. Rastenii, K. A. Timirzayeva, No. 1, 230-24 (1950).— To det. chlorophyll, triturate the specimen with quartz sand, chalk, or $MgCO_3$ and ext. with 50% H_2O_2 or 55% $MgCO_3$. If specimen is dry, or abv. H_2O_2 or $MgCO_3$ for fresh specimen. Run, under suction in a filtering funnel. Subject the ext. to colorimetry. For a simplified detn., use a stand ard soln. of 20 ml. of 4% $K_2Cr_2O_7$, 20.6 ml. of 1% $CuSO_4$, and 10 ml. of 10% NH_4OH . To det. carotene, ext. as above, add the ext. (or an aliquot) to 20 ml. of petr. ether, sep. the aq.- $MgCO_3$ layer (colorless), wash the org. layer several times with H_2O , pass it through a chromatographic tube with

$MgCl_2$, wash with a little petr. ether, and use the resulting yellow soln. for colorimetric detn. Azobenzene in 1.0 ml. can be used as the standard, 11.13 mg. per 100 ml. H_2O_2 corresponding in color to 2.35 mg. of carotene in 1 l. of petr. ether. Det. the amt. of carotenoids in the acetone ext. photometrically with suitable light filters after detg. chlorophyll with a red filter. To combine the detn. of chlorophyll a and b and carotenoids chromatograph on sugar in petr. ether; chlorophyll b forms the upper band, chlorophyll a forms a band below it, xanthophyll forms a still lower band, while carotenoids are not retained. G. M. Kowalsoff

GODNEV, T. N.

USSR/Biology - Plants, Nutrition

1 Aug 50

"Feeding of Fruit Trees by Spraying With a Diluted
Balanced Nutrient Solution," T. N. Godnev, Act. Mem.
Acad Sci Belorussian SSR, N. S. Sudnik, E. P. Syu-
barova

"Dok Ak Nauk SSSR" Vol LXIII, No 4, pp 835, 836

Discusses favorable results of spraying 3-mo old
hybrid seedlings of the prune, *Prunus domestica* L.
and of the pear, *Pirus communis* L., with balanced
nutrient soln made by adding to 6 liters of water
following amounts of salts in grams: $\text{Ca}(\text{NO}_3)_2$ 120,
 K_2PO_4 60, $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ 60, H_3BO_3 3.66, $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$
2.33, $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ 0.33, ZnSO_4 0.33, $\text{Al}_2(\text{SO}_4)_3$ 0.33,
176r8

USSR/Biology - Plants, Nutrition
(Contd)

1 Aug 50

$\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ 0.33, $\text{MgSO}_4 \cdot 6\text{H}_2\text{O}$ 0.33, KI 0.17, KBr
0.17, and $\text{Sn}(\text{NO}_3)_2$ 0.17 and then dilg before use
by putting 10 cc in 10 liters of water. Two tables
of test data.

176r8

114

Chlorophyll content of fresh-water plankton. T. N. Godnev, S. V. Kalinhevich, and G. P. Zakharch (Belarus. Gosudarst. Univ., im. V. I. Lenina). Doklady Akad. Nauk S.S.R. 73, 1041-4 (1950). Some 31 specimens drawn from lakes in Western Russia were analyzed for chlorophyll. Variations from 2.4 to 184 μ /l. were found. The highest values were found in plankton from Naroch Lake in summer months, a lake with high clarity of water and poor level of plankton population. Generally, deep oligotrophic lakes gave low values while shallow lakes tended to give higher values. Generally the level of photosynthesis paralleled the plankton population. G. M. Kosolapoff

GODNEV, T.N., professor; TIKHONOV, V.M., kandidat biologicheskikh nauk.

Effect of light on the pigmentation and seedling growth of certain
woody plants. Sbor.nauch.trud.Inst.biol.AN BSSR no.2:121-130 '51.

(MLRA 9:1)

1. Deystvitel'nyy chlen AN BSSR.

(Plants, Effect of light on)

GODNEV, T.N., professor; TERENT'YEVA, M.V.

Dynamics of chlorophyll accumulation in certain hothouse plants
during the course of a year when grown in the White Russian
S.S.R. Sbor.nauch.trud.Inst.biol.AN BSSR no.2:172-174 '51.
(MLRA 9:1)

1. Deystvitel'nyy chlen AN BSSR.(for Godnev)

(Chlorophyl) (White Russia--Greenhouse plants)

GODNEV, T.N., professor; MIROSENKO, A.V., kandidat biologicheskikh nauk;

Effect of substitution products of phenoxyacetic acid on kok-saghyz
root growth and rubber accumulation. Sbor.nauch.trud.biol.**AN BSSR**
no.2:214-220 '51. (MLR 9:1)

1. Deyatvitel'nyy chlen **AN BSSR** (for Godnev).
(Kok-saghyz) (Growth promoting substances) (Acetic acid)

GODNEV, T.N.

[The structure of chlorophyll and methods for its quantitative analysis] Stroenie khlorofilla i metody ego kolichestvennogo opredeleniya. Minsk, Izd-vo AN BSSR, 1952. 162 p. (MLRA 10:4)
(Chlorophyll)

GODNEV, T.N.; TERNENT'YEVA, M.V., nauchnyy setrudnik.

Effect of light on grain yield and resistance to lodging in oats.
Sbor.nauch.trud.Inst. biol.AN BSSR no.3:3-17 '52. (MLRA 9:2)

1.Deystvitel'nyy chlen AN BSSR (for Godnev)
(Oats) (Plants, Effect of light on)

U S S R .

✓ Enzymic transformation of protochlorophyll into chlorophyll in etiolated leaves of corn kept in darkness. T. N. Godnev and M. V. Terent'eva. *Vestn Akad. Nauk SSSR*, 1952, No. 6, 37-41. — Kernels of corn were germinated in the dark at 20-22° and their first leaves (in the amount of 5-20 g.) were then etiolated and transferred into 800-850 ml. of a juice obtained on pressing (under 3000 atm.) germinated fir seeds; to the juice were previously added 0.6-2.5 ml. of 0.5 N ascorbic acid and 15 ml. of a yeast ext. (40 g. yeast extd. with 100 ml. H₂O at 80°). The exptl. dish was put into a desiccator, from which air was driven off for 30 min. After 48 hrs. the leaves were put into hot water for 2 min., washed thoroughly, dried, and powdered. From the dry prepn. the leaf pigments were then extd. with acetone and the exts. studied spectroscopically for the presence of chlorophyll; all operations were performed in the absence of light. In this way it was shown that the etiolated leaves of corn synthesized (without participation of light) 0.003 mg. chlorophyll a and 0.002 mg. chlorophyll b per g. dry leaves. E. Wielicki.

18

CA

Content of chlorophyll in buds of woody plants in winter and spring. T. N. Gaidarov and M. V. Terent'eva (Bot Inst., Minsk). *Doklady Akad. Nauk S.S.R.* 83, 481-4 (1952); cf. *Trudy Inst. Fiziol. Rastenij im. K. L. Timirjazeva, Akad. Nauk S.S.R.* 7, 244 (1950). Examin. of specimens of *Tilia*, *Populus*, *Ascorus*, *Quercus*, *Syringa*, *Betula*, *Acet.*, *Ulmus*, and *Alnus* species revealed that the closed hibernating buds contain 0.0372-0.248 g. of chlorophyll a and 0.0117-0.030 g. of chlorophyll b/kg. Carotene varies from 0.03 to 0.008, and xanthophyll from 0.058 to 0.008. The swelled almost opening buds in the spring contain 0.2-0.7 g. of chlorophyll a, 0.006-0.160 g. of chlorophyll b, 0.029-0.08 g. of carotene, and 0.048-0.120 g. of xanthophyll/kg. If chlorophyll b forms from chlorophyll a, this change probably occurs immediately after formation in the plastid of the initial mols. of chlorophyll and continues with approx. constant ratio of the 2 compounds. G. M. Kosolapoff

1. GODNEV, T. N., SHLYK, A. A., TRET'YAK, N. K.
2. USSR (600)
4. Phosphorus
7. Role of phosphorus in the structure of chloroplast. Dokl. AN SSSR, 87, No. 3, 1952
9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

USSR

The amount of alkaloids in different varieties of Lupine grown in Byelorussia S.S.R. T. N. Golovnev and A. V. Mironenko, Izdat. Akad. Nauk Byelorussii, 1953, No. 4, 63-71; Referat. Zhur., Khim., 1954, No. 16351. The amt. of alkaloids (I) was studied in different varieties of lupine. Pulverized seeds and other parts of the plant were extd. with a soln. consisting of Et_2O , CCl_4 and 10% NaOH soln. in the ratio of 10:5:1, resp. The amt. of I was found to the difference between the dry substance of the ext. before and after calcination. The seeds of the fiddler lupine varieties contained I from 0.01 to 0.4% while those of the bitter varieties from 1.202 to 3.300% of the dry, dry substance, resp. The biosynthesis of I is more intense during dry and hot vegetative period. The amt. of I is higher in leaves than in stalks, and approx. 2 times as much I is present in physiologically younger (upper) leaves than in older (lower) ones. It's concluded that I are not the final products of the metabolism, but its active participants. B. W.

1. Л.И. Годнев. Урожайность зерновых культур, 1953.
2. УГМК (6.0)
4. Grain
7. The fight against lodging of cereal crops on peat soils, I.I. Godnev, V.M. Terent'ev, Priroda 42 no. 5, 1953.
9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953. Unclassified.

GODNEV, T.N.; TERENT'EVA, M.V.

Transformation of protochlorophyll into chlorophyll in etiolated
leaves of corn after infiltration of extracts of sprouts of fir.
Doklady Akad. Nauk S.S.R. 88, 725-7 '53. (MLRA 6:2)
(CA 47 no.1517602 '53)

GODNEV, T. N.

Chem Abs

U-48 25 Jan 54

Botany

Glucose as the raw material for synthesis of assimilating pigments of plants. T. N. Godnev and A. A. Shlyk. *Doklady Akad. Nauk S.S.R.* 91, 899-900 (1953). — A review on possible mechanisms of formation of plant pigments like chlorophyll is given with 7 references. It was shown that monoses are the raw materials for formation of pigments like chlorophyll and carotenoids. Etiolated leaves of the onion were treated with C¹⁴-labeled glucose and the leaves were illuminated until green color formed. The chlorophyll and carotenoid content of such leaves contained considerable concn. of radioactive C. The labeled glucose was prep'd. photosynthetically in tobacco leaves.

G. M. Kosolapoff

51

CC: 22

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

<u>Name</u>	<u>Title of Work</u>	<u>Nominated by</u>
Godnev, T. V.	"The Structure of Chlorophyll and Methods of its Quantitative Determination"	Institute of Biology, Academy of Sciences Ukrainian SSR

SO: W-30604, 7 July 1954

✓ Lying-down of crops grown on peat soils and how to prevent it. T. N. Godlevy, M. V. Tsvetkova, S. I. Trifanov, and N. I. Famitski. *Vestn. Akad. Nauk Belorus. S.S.R.* 1954, No. 3, 32-8.—Selection of the lying-resistant varieties of crops, proper mech. treatments and water regime of the soil, treating the seeds before sowing with the most active cultures of *Azotobacter*, and mineral nutrition of the plants are the main factors discussed. The stalks of grains in order to be able to support the grain ears have to contain certain amts. of cellulose and lignin, the formation of which in plants depends on the K and P contents of the soil. On peat soils 30-40 kg. granulated superphosphate and 90-100 kg. K/ha., put into the soil approx 15-30 cm. deep, are sufficient to prevent crops from lying down, provided all other requirements are met. E. Wierbka

(3)

Godnev, T. N.

Participation of glucose in the formation of the phytobilins and the phytol components of the chlorophyll molecule. T. N. Godnev and A. A. Shlyk. *Doklady Akad. Nauk S.S.R.* 94, 301-4 (1954).—Introduction of C^{14} -labeled glucose (produced by growing tobacco plants in C^{14} -enriched atm.) into etiolated onion leaves, followed by strong illumination of the leaves, resulted in introduction of C^{14} activity into the pigments of the onion leaf. The activity (based on original level in glucose taken as 100%) was 0.60% in chlorophyll, 0.23% in xanthophyll, and 0.01% in carotene, which were sepd. chromatographically. Hydrolysis of chlorophyll with 30% FOH in MeOH showed that its C^{14} activity was distributed in the ratio of 44.8% in the phytol and 55.2% in the chlorophyllin part of the structure. The transition from protoporphyrin to protochlorophyll is believed to consist of closure of the ring between the γ -C atom of the porphine and α -C atom of propionic acid in position 6 of the 3rd pyrrole ring, with oxidation of the β -C atom in this side chain, and finally with hydrogenation of the vinyl group in position 4. The possibility of formation of protochlorophyll from glucose has been considered earlier; the biosynthesis of phytol is also believed to arise principally in glucose or a sugar. The phytobilin fragment appears to utilize material originating to the extent of some 75% from glucose, the rest arising from phytol as Me ester. G. M. Kopeliovich

GODNEV, T. N. and SHIJK, A. A.

"C¹⁴ in the Study of the Biosynthesis of Chlorophyll," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

GODNEV, T.N.; SHLYK, A.A.

[C¹⁴ in studying the biosynthesis of chlorophyll] C¹⁴ v izuchenii biosinteza khlorofilla. Moskva, 1955. 12 p.
(MI:A 15:10)

(Carbon—Isotopes) (Chlorophyll)

GODNEV, T.N.; SUDNIK, N.S.

Effect of light on the accumulation of pigments in the leaves of
one-year-old sweet cherry seedlings. Fiziol.rast.2 no.4:338-340
(MLRA 8:12)
Jl-Ag'55.

1. Belorusskiy Gosudarstvennyy universitet imeni V.I.Lenina,
Minsk
(Chromatophores) (Plants, Effect of light on)

GODNEV, T.N. professor; SHLYK, A.A.

New developments pertaining to chlorophyll biosynthesis in
plants. Priroda 44 no.5:48-51 My '55. (MIRA 8:7)
(Chlorophyll) (Biochemistry)

GODEV, T. N.
USSR/Biology - Ecology

Card 1/1 Pub. 22 - 46/54

Authors : Vinberg, G. G.; Godnev, T. N., Act. Memb. of Byeloruss. Acad. of Sc.;
and Gaponenko, V. T.

Title : Application of the P radio isotope in studying the fertilization of
ponds

Periodical : Dok. AN SSSR 100/3. 575-578, Jan 21, 1955

Abstract : The role of phosphorous fertilizers as a means of increasing the fish
productivity of ponds is explained. Methods of employing a phosphorus
radio isotope during the study of pond fertilization are described.
Some results obtained by means of these methods are listed. Five
references: 2 USSR and 3 USA (1950-1953). Table, graph.

Institution : The V. I. Lenin Byelorussian State University

Submitted : November 4, 1954

SHLYK, A.A.; GODNEV, T.N., akademik, redaktor; ALEKSANDROVICH, Kh., tekhnicheskij redaktor

[Tagged atom method of studying the biosynthesis of chlorophyll]
Method mechenykh atomov v izuchenii biosinteza klorofilla. Minsk,
Izd-vo Akademii nauk BSSR, 1956. 298 p. (MLRA 9:11)

1. Akademiya nauk BSSR (for Godnev)
(CHLOROPHYLL) (RADIOACTIVE TRACERS)

USSR / Soil Science. Mineral Fertilizers.

J-4

Abs Jour: Ref Zhur-Biol., No 8, 1958, 34422.

Author : Godnev, T. M., Torent'yov, V. I.
Inst : AS Latv. SSR, and Institute of Biology, AS BSSR.
Title : Experiments with Using Trace Elements on Peat-
Bog Soils Under Conditions Prevalent in Belc-
russian SSR.

Orig Pub: V sb.: mikroelementy v s.kh. i meditsine, Riga,
AN LatvSSR, 1956, 135-141.

Abstract: Pre-sowing soaking-during 6-12 hours-of seeds of
oats, barley and summer wheat in balanced solu-
tion of major and minor elements (initial 1000-
multiple solution of Hochland accompanied by the
common 1/60 molar triple-salt nutritive mixture
 Ca^{++} , Mg^{++} , K^+ , SO_4^{2-} , NO_3^- , H_2PO_4^-), has brought
about - in field tests on peat and mineral soils

Card 1/2

USSR/Plant Physiology. Photosynthesis

I

Abs Jour : Ref Zhur-Biol., No 13, 1958, 58177

Author : Shlyk A. A., Godney T. N., Totfarb R. M.,
Lyakhovich Ya. P.

Inst : Institute of Biology, Belorussian SSR
Title : On the Correlation Between the Biosynthesis of
Chlorophyll a and Chlorophyll b During the Res-
toration Process

Orig Pub : Byul. In-ta biol., AN BSSR, No 2, 1956, (1957),
59-64

Abstract : Nicotiana alata, Syringa vulgaris, and Cerato-
phyllum demersum plants were kept for a period
of 24 hours in an atmosphere containing $C^{14}O_2$.
The specific radioactivity of chlorophyll a,
purified by double chromatography on glucose and
paper, was found to be three times as high as

Card 1/2

USSR/Plant Physiology. Photosynthesis

I

Abs Jour : Ref Zhur-Biol., No 13, 1958, 58178

Author : Shlyk A. A., Godnev T. N., Lyakhovich Ya. P.,
Rotfarb R. M., Yunevich V. I.

Inst : Institute of Biology, Academy of Sciences
Belorussian SSR

Title : A Study of the Restoration of Components of
Chlorophyll during its Accumulation

Orig Pub : Byul. In-ta biol. AN BSSR, No 2, 1956, (1957)
65-71

Abstract : The investigation of the restoration of chlorophyll in the shoots of *Ceratophyllum demersum* L. was carried out under conditions of its continued accumulation, with the help of marked atoms. In calculating the relative specific activity of chlorophyll the authors assumed that dicar-

Card 1/2

USSR / Microbiology. General Microbiology. Physiology and Biochemistry. F-1

Abs Jour: Ref Zhur-Biol., No 16, 1958, 71926.

Author : Godnev, T. N.; Rotfarb, R. M.

Inst : Institute of Biology AS BSSR.

Title : On the Leuko-Compound of Prodigiosin.

Orig Pub: Byul. In-ta biol. AN BSSR, vyp. 2, 1956 (1957),
75-78.

Abstract: A prodigiosin pigment isolated from Bacillus prodigiosus in a pyridine solution was reversibly restored in a vacuum of 0.05 and 0.1 n. by ascorbic acid to a leuko-form which leads to a change of the absorption maximum from 507 to 475 m μ . In the presence of oxygen, the leuko-form is oxidized back to prodigiosin. The authors

Card 1/2

8

Card 2/2

USSR/Plant Physiology. Photosynthesis

I

Abs Jour : Ref Zhur-Biol., No 13, 1958, 58179

Author : Godnev T. N., Shlyk A. A., Lyakhovich Ya. P.
Inst : ~~Institute of Biology~~, Academy of Sciences
Belorussian SSR

Title : Concerning the Problem of the Final Stage of
Chlorophyll Formation

Orig Pub : Byul Insta AN BSSR, No 2, 1956 (1957), 79-84

Abstract : Preliminary data on the final stages of chlorophyll formation have been received. A product similar to chlorophyll a is formed when ethylated barley leaves are kept at low temperatures (0 to 0.5°) under noncontinuous illumination. Its maximum absorption is within the 660mu and 402 mu range; from a sulfuric ether the substance is converted into an aqueous alkaline

Card 1/2

USSR/Plant Physiology. Photosynthesis

I

Abs Jour : Ref Zhur-Biol., No 13, 1958, 58180

Author : Godnev T. N., Akulovich N. K.

Inst : Institute of Biology, Academy of Sciences Belo-
russian SSR

Title : On the Effect of Ozone on the Correlation of a
and b Chlorophylls in Corn Shoots and Young
Branches of Lilac

Orig Pub : Byul. In-ta AN BSSR, No 2, 1956 (1957), 88-93

Abstract : Corn shoots and young lilac branches were grown
in an atmosphere of ozone for a period of 10
days. Ozone which is a more active oxidizer than
oxygen had no effect on the correlation of a and
b chlorophylls in the leaves of the plants. A
slight inhibition of the chlorophyll accumulation
process was noted when the plants were placed in
an ozone atmosphere for a period of 10 days.

Card 1/1

GODNEV, T. N.

Concentration of chlorophyll in chloroplasts of *Prunus* cherry in dependence on the light regime. T. N. Godnev and N. S. Sudnik (V.I. Lenin State Univ., Moscow). Rastenii 3, 363-4 (1959).—Concen. of chlorophyll in *Prunus cerasum* are found to be the same as for other plants (cf. Eder, *et al.*, C. 1959, 1461). Concen. of chlorophyll tends to rise with age of plant. The concen. in shaded leaves than in exposed ones. G. M. Krasil'nikov

GODNEU, T. N.
USSR/Cultivated Plants - Technical, Oil, and Sugar Plants.

M-4

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10891

Author : Godneu, T.N., Stasenka, N.N.

Inst :
Title : The Growth and Development of Hemp as Affected by the
Light Regime and Factors Connected with It.

Orig Pub : Izv. AN FSSR, ser. biol. n., 1956, No 4, 77-78

Abstract : In field experiments the light regime was varied by locating the plants differently over an area with the same sowing norm (120 kg./hectare). Ordinary sowing was tested, with the space between the rows at 8, 16, and 50 centimeters, and also belt sowings with the belts 16 centimeters wide and 50 centimeters between belts. Photometric measurements have demonstrated that increasing the space between rows intensifies the illumination received by each plant, but the consequent increase in the number of plants alters the conditions of growth. To avoid these secondary

Card 1/2

GODNEV, T.N.

The structure of a chlorophyll-protein-lipoid complex. T. N. Godnev. *Inst. Akad. Nauk S.S.R., Sov. Akad. Nauk S.S.R.* No. 5, 637-9 (1958). -- The attachment of chlorophyll to protein layers in chloroplast grana is attributed to complex formation between the phlorbin nuclei of chlorophyll and the amino acids. Expts. are described on shifts in light absorption of H₂O solns. of chlorophyllide and chlorophyll. H. P.

Godnev, T. N.

USSR/Physical Chemistry - Molecule, Chemical Bond.

B-4

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3537.

Author : T.N. Godnev, P.V. Yefremova, L.A. Kravtsov.

Inst : Academy of Sciences of USSR.

Title : Influence of Some Acid and Alkaline Substances on Absorption Spectra of Chlorophyll and Chlorophyllide.

Orig Pub: Izv. AN SSSR. Ser. fiz., 1956, 20, No 5, 540-546.

Abstract: The absorption spectrum (AS) of chlorophyll (I) has two maxima (M) in the visible range: 415 and 658 $\text{m}\mu$ in benzene and 429 and 662 $\text{m}\mu$ in ether. If a fatty acid was added to the I solution, a rise of the absorption intensity of the short wave M (SWM), as well as an insignificant hypsochromic shift of the long wave M (LWM) (of 2 to 4 $\text{m}\mu$ at the addition of palmitic acid and of 2 $\text{m}\mu$ at the addition of acetic acid) takes place in proportion to the acid concentration rise. The AS of chlorophyllide (II), produced of I by the chlorophyllaze ferment, has maxima at 402

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USSR/Physical Chemistry - Molecule, Chemical Bond.

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3537.

and 656 μm in aqueous solution. If hydrochloric acid was added to the II solution, a decrease of LWM is observed in proportion to the acid concentration rise. Starting from the HCl concentration of 0.0013 n., the LWM begins to split, maxima at 648 and 670 μm are clearly revealed at 0.0015 n., and if the HCl concentration was raised further, M at 648 μm disappears and the intensity of the M at 670 μm increases. This is connected with the removal of magnesium from the II molecule and the formation of pheophorbid. At the action of dihydric aminoacids - aspartic (III) and glutamic (IV) acids - the intensity of the SWM decreases and it shifts a little down and the LWM (at 0.001 n., of IV) splits at first into maxima at 642 and 675 μm . The intensity of the 642 μm M rises and the M at 675 μm disappears gradually in proportion to the acid concentration rise. The intensity of the 642 μm M starts also to drop beginning from the IV concentration of 0.2 n. These changes are connected with the

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Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3537.

leaves. A surmise about the formation possibility of aggregated chlorophyll states in living leaves was expressed during the discussion.

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